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ABSTRACT

This digest makes the case for using poetry in the teaching of science. Poems can braid curriculum areas, breaking through boundaries and weaving concepts together. The digest contains a list of poets and poems on Science, as well as lists of ERIC and World Wide Web resources. (MM)

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By

Davi Walders

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Digest

Poetry and Science Education

Davi Walders

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Poetry and science? Does this equation compute? Poets, many of whose works have been inspired by science, would certainly answer in the affirmative, including William Carolow Williams, a doctor who continued to make house calls while becoming one of America's major poets.

On a smaller scale, I am a poet and former teacher who encourages the weaving of poetry into all areas of the curriculum, particularly into the sciences. As a collector of poems for many years, I have seen the power that the right poem read at the right moment can have. Paradox, creative thinking, attention to detail, discovery, humor—a good poem carries many of these elements so critical to scientific inquiry.

For instance, one of Emily Dickinson's numerous poems on scientific subjects might provide a good beginning to a study unit on the human body. Here is one of her brilliant and playful openings:

> *The Brain – is wider than the Sky –*
> *For – put them side by side –*
> *The one the other will contain*
> *With ease – and You – beside...*

Or Adrienne Rich's "Planetarium," a contemplation about astronomer Caroline Herschel standing alone in 1848, offers students a clear image of a real person doing real science.

> *...a woman 'in the snow*
> *among the Clocks and instruments*
> *or measuring the ground with poles'*
> *in her 98 years to discover*
> *8 comets...levitating into the night sky riding the*
> *polished lenses...*

I believe poems have a role to play in all classrooms and disciplines. Even if only used occasionally to change pace or try something new, a good poem has the power to awaken students (literally and figuratively), to stir the imagination with metaphor and surprise, to open a window, and let the light of learning in.

How could I not feel this way? I am a poet who has had the pleasure of looking out at audiences during readings, watching words form a magical bridge that connects in nods, smiles, and tears. I have watched new awareness and space in a listener's mind and heart being created through the power of a poem. After a reading, people have lined up to share their own memories evoked by something I have read. Sometimes I have been thanked for writing what listeners say they have long known or felt, but could not express. A poem has helped them know more about their own experience. And I, myself, have often felt that same shock of recognition and insight when reading a good poem.

But even more importantly, long before I wrote my own poems, I used other's poetry in my classes, whatever the subject I was teaching. I still run into students who say they remember nothing else but a poem we read and the boy (or girl) in the next row. I kept a file of poems and a few anthologies next to the dictionary on my desk. And I used them.

Maybe you're thinking about how much you disliked poetry, how intimidated you felt, how you never "got it." I didn't much like poetry in school either. Because of the way it had been taught, I rarely had been allowed to experience the power of the poem, taste its richness, let its texture really touch me before I had to begin analyzing, dissecting, pulling apart. Keep the dissecting in the lab. Use poems to increase understanding and deepen enjoyment.

Poems may be written in vernacular or rap, all caps or lower case, but a good poem is always substantial, teaching us about ourselves and the world. A poem's imagery and metaphors can intensify and clarify meaning. Poetry can turn on the light and deepen meaning as nothing else can. Which carries more meaning? "That's a difficult class," or "I feel like shattered glass after that class."

Two or three minutes may be enough. A poem that catches a class's interest may come up over and over in discussion, be referred to again and again throughout the year as a shared experience by which other moments may be measured. What can't be seen or understood by more didactic methods of teaching may suddenly be clarified by a poem. Poems touch us at deep levels, levels we don't or can't always articulate. Meaning carried by metaphor and the condensed, tight language of a poem may penetrate faster for learning disabled students as well as having great appeal to gifted students because of a poem's many layers and the worlds contained, but not necessarily voiced. In their richness, poems can often be the source of "aha," or "Now I get it."

Poems braid curriculum areas, breaking through boundaries, weaving things together: formulae to feelings, a long-ago lab experiment to today's, frustration to sudden laughter. Poems contain values and voice, time and place, past and present. They carry within their spareness the currents of rivers, the horizon, and the scent of loamy soil. Nothing else but "some forms of advanced science – particle physics, for example,"

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says poet, educator, and 1996 Pulitzer Prize winner Jorie Graham, "allows a young mind to experience the paradox, ambiguity, irrational thought, associative 'leaping' any good poem teaches us to think and feel in."

Poets and Poems on Science

Margaret Atwood, *Selected poems 1965-1976*, Houghton Mifflin, 1987. Includes such wonderful poems as "The Woman who could not live with her faulty heart."

e e cummings, *The complete poems, 1913-1962*, Harcourt Brace Jovanovitch, 1972. Includes such poems as "now air is air and thing is thing: no bliss" and "[space being (don't forget to remember) Curved)."

Emily Dickinson, *Collected poems of Emily Dickinson*, Doubleday, 1997. Most also available online at userweb.interactive.net/~krisxlee/emily/poemsOnline.html. Any collection will include such surprising and thought provoking gems as "The Brain – wider than the Sky."

Robert Frost, *Collected poems, prose, & plays by Robert Frost*, R. Poirier and M. Richardson, eds. The Library of America, 1995. Includes poems such as "Our Hold on the Planet," and "Why Wait for Science?"

Robinson Jeffers, *Collected poetry of Robinson Jeffers Vol. II 1928-38*. Tim Hunt, Ed. Contains beautiful pieces about the natural world, Big Sur, and the California coast such as "Evening Ebb."

Mary Oliver, *New and selected poems* and her other collections contain quiet celebrations of animals, the moon, trees, the seasons. A sampling of titles includes "Alligator Poem," "Poppies," "Water Snake," and "Black Snake."

Marge Piercy, Mars and her children and many of her other collections have poems about the gifts of the world including whales that visit the coast of Cape Cod, her cats, and her garden.

Muriel Rukeyser, *A Muriel Rukeyser reader*, Jan Levi, Ed., W W Norton, 1994. Contains amusing and true poems of praise for small things such as "The conjugation of the Paramecium" and "St. Roach."

William Carlos Williams, *Selected poems*, New Directions Publishing Corp., 1985. Williams was a doctor who practiced full-time while writing some of America's finest poetry. Many of his poems such as "Iris" are famous for their beauty and power.

Recommended Resources:

Following are selected resources listed in Volume 36, Issue 2 (March/April 2000) of *Science Books & Films*:

Brown, Kurt (Ed.). (1998). *Verse and universe: Poems about science and technology*. Minneapolis: Milkweed.

Elder, John. (1985). *Imagining the earth: Poetry and the vision of nature*. Champaign, IL: University of Illinois.

Fletcher, Ralph. (1997). *Ordinary things: Poems from a walk in early spring*. NY: Atheneum.

Frucht, William, (Ed.). (1999). *Imaginary numbers: An anthology of marvelous mathematical stories, diversions, poems, and musings*. NY: Wiley.

Goldish, Meish. (1977). *101 science poems & songs for young learners with hands-on activities*. NY: Scholastic.

Steinman, Lisa M. (1987). *Made in America: Science, technology, and American modernist poets*. New Haven, CT: Yale University Press.

ERIC Resources:

Searching the ERIC database (http://www.accesseric.org:81/searchdb/searchdb.html) using "poetry" as a descriptor, together with "science education" or other science-related descriptors will lead to such resources as the following:

Romer, Robert H. (1993). Robert Frost and the Second Law of Thermodynamics. *Physics-Teacher, 31*(6), 360. [EJ487023]

Liftig, Inez Fugate. (1993). Getting the point through poetry. *Science Scope, 16*(7), 22-24. [EJ473486]

McClintock, James I. (1992). Gary Snyder's Poetry and Ecological Science. *American Biology Teacher, 54*(2), 80-83. [EJ471647]

Coletta, W. John, & Tamres, David H. (1992). Robert Frost and the Poetry of Physics. *Physics Teacher, 30*(6), 360-65. [EJ458331]

Web Resources

Using a search engine, such as Google (http://www.google.com) and terms such as poetry and science, many Website similar to the following can be located:

Science Through Poetry: A Cross-Curricular Approach
http://www.ncrel.org/mands/docs/6-12.htm

A Successful Experiment in Poetry. A science poetry contest for schoolchildren.
http://www.bc.edu/bc_org/rvp/pubaf/chronicle/v8/n11/poetry.html

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